Survey errors fall into two categories: Sampling and Non-sampling errors. Non-sampling errors are commonly subdivided into errors of coverage (or frame), non-response, and measurement (Dillman, 2000; Groves, 1989; 1991; Lavrakas, 1993; Lessler & Kalsbeek, 1992). One source of measurement error is the questionnaire. Measurement error emanating from this source can be alleviated, at least partly, by methodical questionnaire construction.

Unlike the systematic theories of sampling, questionnaire construction has long been viewed as one of the 'soft' aspects of survey research (Schwarz, 1996). Indeed, Payne's (1951) classic book was titled "The Art of Asking Questions." Since that time, several influential works (Belson, 1981; Bradburn, Sudman, & Associates, 1979; Converse & Presser, 1986; Foddy, 1993; Fowler, 1995; Oppenheim, 1966; Peterson, 2000; Salant & Dillman, 1994; Schuman & Presser, 1981; Schwarz, 1997; Sheatsley, 1983; Sudman & Bradburn, 1982; Tanur, 1992) have been published on the topic of questionnaire construction. These are based on research conducted almost exclusively in English-language questionnaires. Whereas, some of the findings may apply to surveys conducted in other languages, others are likely to be idiosyncratic to English. Furthermore, it is possible that what is applicable in one 'version' of English (e.g., American English) may not apply to other 'versions' (e.g., Australian English).

The process of developing a good questionnaire involves several highly inter-related considerations. Here, these are discussed under five major categories: Questionnaire administration mode, question structure, question sequencing, other issues, and ques-
uestionnaire pretesting.

An important prerequisite to effective questionnaire construction is a thorough understanding of the strengths and weaknesses of the various modes of administration. Selection of the most appropriate method should be guided by various theoretical and pragmatic factors including the questions themselves and the intended sample. A researcher with experience and ability to write questionnaires in a particular mode may need fundamental changes in his/her approach to construct questionnaires in another mode of administration.

The structure of each question is another important consideration. Question structure includes the wording of the question stem and the framing of the response alternatives. Meticulous consideration should be given to the wording of the stem keeping in mind that a distinction that is important to the researcher may not be salient to the respondent. For each question, the researcher must explicitly or implicitly address issues such as: Is the requested information available to the respondent? Is the respondent willing to divulge the information (is a particular questionnaire method preferable than another for that type of information and what is the best way to create the question and its choices in order to decrease item nonresponse)? Is the meaning of the question the same across respondents and is it the same as that of the researcher? Is the question burdensome to the respondent? Generally, it is advisable to be concise, and use words that are unambiguous and familiar to all respondents. Jargon, double negatives, double-barreled questions, and leading or loaded items must be avoided. For questionnaires administered repeatedly, there are substantial advantages to keeping the wording identical. At the same time, the dynamic nature of language and societal changes may necessitate various wording adjustments.

Researchers have several important decisions regarding the appearance and phrasing of the response alternatives including the choice between closed-ended and free-answer formats. For closed-ended questions, the provided choices should be non-overlapping and exhaustive of all possibilities bearing in mind that there is a fine line between being comprehensive and overwhelming the respondent with too many alternatives. The intrusiveness and complexity of certain items can be decreased by the provision of response choices that represent a range of values. For every item, the ap-
plicability of various non-substantive (e.g., don't know, can't remember) responses should be carefully considered. The format, number, and length of the alternatives are other important issues that must be decided based on various factors including the mode of questionnaire administration. In addition, the order of the choices can influence the obtained results and it has been demonstrated (Knäuper, 1999) that it can interact with certain respondent characteristics (e.g., age). Indeed, an important advantage of computer interactive questionnaires is the ease with which certain methodological studies can be conducted because such administration can randomize the order of response alternatives (and items) in a feasible manner (Synodinos & Brennan, 1988).

Another important aspect of good construction is appropriate sequencing of individual questions to create a questionnaire that flows seamlessly. Generally, issues that must be considering when deciding the sequence of items include: The degree of perceived intrusiveness of the question, question similarity in topic and/or format, and the most pertinent flow that will facilitate administration. The growing literature on context effects (for a review see Tourangeau, Rips, & Rasinski, 2000) provides researchers with useful insights and emphasizes the need for careful organization of the questionnaire.

There are also various other issues that must be considered by the researcher. A questionnaire is intended for a particular group and as such it should be geared specifically for these respondents. Questionnaire quality should be of paramount importance and considered in terms of the available timeframe and resources (personnel, budgetary). The design and layout of the questionnaire should reduce respondent burden. For some questions, it is necessary to include instructions to respondents or interviewers. Some instructions may be included at the question stem and others may be at the response choices giving branching directions. Such instructions may be accompanied with appropriate illustrations (e.g., arrows). Instructions should be unambiguous and stylistically different from the text of the questions. Clear branching instructions can prevent some item nonresponse. Several authors (Dillman, 2000; Salant & Dillman, 1994; Sudman & Blair, 1998; Sudman & Bradburn, 1982) provide detailed and indispensable advice on various issues relating to question formatting and
Pretests help uncover various problems germane to the questionnaire and its administration. Detailed pretesting must be always a part of every survey (Fowler, 1995; Synodinos, 2003). Yet, empirical research on pretests is relatively limited (Reynolds & Diamantopoulos, 1998). It has been noted (Hunt, Sparkman, & Wilcox, 1982; Sykes & Morton-Williams, 1987) that despite the importance of pretests they are handled in a non-systematic and casual manner. Starting in the early 1980s (Jabine, Straf, Tanur, & Tourangeaou, 1984), applications of cognitive approaches to survey methodology have provided additional tools in the repertoire of researchers that can be used for pretests.

The foregoing discussed some of the issues involved in questionnaire construction and provided some guidelines. Taking into consideration these findings and rules may lead to more effective questionnaires and can reduce item and unit nonresponse. Nevertheless, the following caveat is in order: Not adhering to some of these rules is unwise but following them blindly is even worse.

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